

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

Poly(S/DVB)HIPE was successfully prepared from high internal phase emulsions technique and improved the property using difference ratio of DVB. The obtained polyHIPEs have open cell structure with average diameter 41.2, 58.8, and 79.4 μm and surface area 456, 189, and 22 m^2/g for S/DVB at 0:100, 20:80, and 80:20 respectively. Moreover increasing the concentration of divinylbenzene, thermal degradation of polyHIPE was increased from 372 to 440 $^{\circ}\text{C}$ and compressive strength was increased from 0.13 to 0.30 MPa so polyHIPE becomes more stable. In addition, poly(S/DVB)HIPEs were completely synthesis and modified surface with the layer-by-layer technique. Increasing PEI/PSS multilayer from two to eight improved the CO_2 adsorption. However, the surface modification polyHIPE at 6 layers leading to increase the efficiency of CO_2 adsorption capacity. Poly(S/DVB) HIPE modified by PEI at 6 layers with high amounts of DVB (S/DVB: 0:100) in monomer ratio is the best surface modification to increase of the CO_2 adsorption capacity up to 30% at 1.04 mmol/g, when compare with the non-modified sample.

5.2 Recommendations

The further work should be observe the pore diameter and surface area before testing on CO_2 absorption because research should to confirm the CO_2 adsorption capacity in same condition of surface area.